RTP ENVIRONMENTAL ASSOCIATES INC.®

AIR • WATER • SOLID WASTE CONSULTANTS

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al

October 24, 1995

Mr. Clair Fancy, P.E.
Chief, Bureau of Air Regulation
Florida Dept. of Environmental Protection
111 S. Magnolia Drive, Suite 4
Tallahassee, FL 32301

Re: DEP Files PSD-FL-227, AC27-274892, PA82-17
Florida Crushed Stone, Proposed 2nd Cement Kiln

Dear Mr. Fancy:

The applicant wishes to provide the following comments on the Notice of Intent to Issue Permit, the Draft Permit, and the Department's BACT Determination for the proposed 2nd cement kiln at the Florida Crushed Stone (FCS) facility near Brooksville, Hernando County, Florida. These materials were attached to the October 3, 1995 letter from yourself to Mr. Joseph T. Piermatteo of FCS.

NOTICE OF INTENT TO ISSUE PERMIT

Class I Increment Consumption

On page 2, it should be noted that the maximum PSD Class I NO_2 increment consumed of 1.0 $\mu g/m^3$ is for emissions from both the proposed project as well as all other applicable PSD sources within at least 100 kilometers (km) of the Chassahowitzka National Wildlife Refuge.

BACT DETERMINATION

Minor Particulate Sources BACT Emission Limits

The applicant accepts the 5% opacity limit as an alternative limit to the lb/hour emission limits in accordance with standard Department policy given at FAC 17-297.620(4) for minor particulate sources equipped with baghouses.

NO_x Permit Limit

Attached is a summary of NO_x test data for Florida Mining and Minerals and Florida Crushed Stone. As can be noted from the data, the value of 2.8 lbs/ton of clinker is a very aggressive standard. Current stack tests from 1993 and 1994 for kiln alone testing at Florida Crushed Stone indicates values at or slightly above this number, while CEM data from Florida Mining and Minerals shows a 24-hour block average value as high as 3.11 on April 20, 1993.

Florida Crushed Stone still believes that the appropriate permit level for BACT for this kiln, considering the kiln design and available feed materials, is 4.33 lbs/ton of clinker. However, in the interest of expediting the permit application, we have agreed to accept the Department's suggested value of 2.8 lbs/ton of clinker. Good faith efforts will be made to achieve this limit within the first 18 months after start-up of commercial operations. However, we would also request that the Department re-review its position, and if possible, increase the permitted level to the originally proposed 4.33 lbs/ton of clinker or to extend the averaging period to 30 days, similar to the existing Florida Mining and Minerals permit.

As discussed with the Department, any of the increased levels will show compliance with air quality standards as well as AQRV values. The National Park Service U.S. Fish & Wildlife personnel have agreed that the PLUVUE-II model should be run with the rural dispersion coefficients, which would then demonstrate no significant impact.

DRAFT PERMIT

Feed Rates

Specific condition 3 (page 5) limits the kiln to a clinker production rate of 83.0 tons per hour (TPH) and a maximum preheater feed of 138.0 TPH. Based on the preheater feed rate, the kiln feed rate is calculated to be an equivalent of 127.0 TPH. Since preheater feed rates are easier to measure than kiln feed rates and in accordance with condition 3, the applicant requests that page 10 (condition 28) be rewritten as follows (revisions underlined) to require the preheater feed rate to be recorded rather than kiln feed rate:

> 28. FCS shall record, as a minimum, the daily dry preheater feed rate for the No. 2 kiln (TPH), and the clinker production rate. The above records shall be retained for a period of five (5) years and made available to the Department upon request.

Types of Fuels and Usage

In the air permit application and comment responses, FCS requested that tire derived fuel (TDF, i.e., shredded tires) as well as whole tires be permitted for the facility consistent with recent permit modifications for the existing kiln (see attachment 6 to the July 11, 1995 comment responses). FCS also requested the permit allow the use of natural gas as well as coal, tires, TDF, etc. during normal operation of the kiln. Therefore, please revise paragraph 2 on page 1 of the *Air Construction Permit* to include TDF with whole tires as supplemental fuel and natural gas with coal as the main fuel fired.

The Kiln 2 draft permit refers to blends of oil only and one condition specifically refers to No. 2 fuel oil. Since the same blend tank will be utilized for both kilns, FCS requests that the Kiln 2 permit conditions be no more restrictive than the Kiln 1 permit conditions, which allow the use

of any grade virgin oil and/or blended with on-spec used oil up to the 15% by volume maximum limit.

Therefore, please revise pages 5 (permit condition 4) and 6 (permit condition 6) of the *Air Construction Permit* to read as follows (revisions underlined):

> 4. Fuels fired in No. 2 kiln shall not exceed a total heat input rate of 303 MMBTU/hr and shall consist only of:
>
> a. Coal, whole tires, tire derived fuel (shredded tires), and natural gas for normal operation
>
> b. Natural gas, all grades of virgin fuel oil, and/or blends of virgin fuel oil and on-spec used oils for startup.
>
> 6. Whole tires and tire derived fuel may be fed continuously at the kiln inlet ...

Coal Sulfur Contents

The Kiln 1 permit was modified in August 1994 to remove references to coal sulfur contents and testing requirements. At that time, it was determined by the Southwest District office that restricting the coal sulfur content was not necessary to ensure compliance with the Kiln 1 SO_2 permit limit. For this reason and given that the permit requires an SO_2 Continuous Emission Monitor (CEM) to verify permit compliance, the applicant wishes to request that page 5 (permit condition 5) of the *Air Construction Permit* be revised to include only the following language:

> 5. The coal usage rate shall not exceed 10.3 TPH or 90,228 TPY based on continuous operation.

Use of Tire Derived Fuel

The following language which appears on page 6 (permit condition 7) of the *Air Construction Permit* does not exist in Kiln 1 permit: "Thereafter, gases exiting the kiln shall be maintained at an outlet temperature of 1750 degrees F." As written, this condition fails to specify any averaging time for compliance purposes and conflicts with the earlier requirement of 1400 degrees F for one hour prior to initiating tire firing (i.e., would require an instantaneous jump from 1400 to 1750 degrees F). As discussed in our October 11th meeting, this condition is difficult to measure and unnecessary. Therefore, the applicant requests that this language be removed.

In addition, permit condition 34 (page 11) of the *Air Construction Permit* requires that "In the event of...any malfunction of process equipment resulting in kiln emissions exceeding limits set forth in Tables I and II, the operator shall immediately stop the feeding of tires into the kiln and not resume the firing of tires until the emission control equipment has been put into proper working order." This conflicts with existing test data which suggests that tires and tire derived fuel may actually improve combustion conditions and lower NO_x emissions. If the kiln is in an upset condition, the last thing you want to do is to upset it further. Tire feed

is stopped when coal feed is stopped for the most part. Therefore, the applicant requests that this condition be removed.

Minor PM Emission Limits

The draft permit language gives minor sources emission limits as visibility limits and not lb/hour limits, which is contrary to current permit language for other existing FCS sources. The applicant is willing to accept an opacity limit of 5% as an alternative limit in accordance with standard Department policy given at FAC 17-297.620(4) for minor particulate sources equipped with baghouses. Therefore, the applicant requests that page 7 of the *Air Construction Permit* (permit condition 13) be revised to read as follows (added language underlined):

> 13. The permittee shall not cause or allow to be discharged into the atmosphere visible emissions which exceed the limits listed in Table I. In accordance with FAC 17-27.620(4), minor particulate sources equipped with baghouses with visible emissions which equal or exceed 5% opacity shall require the permittee to perform a stack test in accordance with approved methods to verify compliance with the 0.01 gr/dscm emission limit contained on Table I.

If standard Department policy as given at FAC 17-297.620(4) is not acceptable for the proposed minor particulate sources, then the applicant requests that the visibility limit be no more stringent than the recent BACT limit determined for Florida Rock Industries, namely 10% opacity. This would necessitate that the emission limits on Table I of the *Air Construction Permit* for the minor particulate sources be changed to 10 percent opacity.

NO_x Permit Limits

As discussed above, the applicant has accepted a change to the Table II allowable emissions for the main stack to 2.8 lbs/ton of clinker with compliance determined on a 24-hour basis.

Typographical Errors

The following typographical errors appear in the draft permit:

Page 5, Permit Condition 1: "...and operation of of the No. 2 kiln..."

Page 9, Permit Condition 27: "...for at least two (5) years..."

If you have any questions or need any additional information, please feel free to contact me at the above number.

Sincerely,

RTP ENVIRONMENTAL ASSOCIATES, INC.®

Donald F. Elias
Principal

DFE/WEC/wec

cc: H. Oven/A. Linero/T. Heron/C. Holladay, DEP
L. Curtin, Esq., H&K
W. Corbin/M. Hober/M. Lewis/FCS Project File, RTP Env. Associates

SUMMARY OF NOx STACK TEST DATA FOR FLORIDA CRUSHED STONE KILN 1

Date	Test Number	Clinker Production (ton/hr)	NOx Emissions (lb/hr)	NOx Emissions (lb/ton)	Notes
06/14/89	1		387.6	4.85	
	2		227.8	2.85	
	3		238.4	2.98	
	Avg	80.0	284.6	3.56	Coal= 9.6 tph
08/20/90	1		378.13	4.45	
	2		560.75	6.60	
	3		447.48	5.26	
	Avg	85	462.10	5.44	Coal= 8.5 tph
03/02/91	1		66.9	1.01	
	2		59.4	0.90	
	3		152.6	2.31	
	Avg	66	92.9	1.41	Coal= 9.2 tph
10/13/91	1		434	5.56	
	2		240	3.08	
	3		384	4.92	
	Avg	78	353	4.53	Coal= 9.1 tph
10/21/91	1		210.6	2.74	
	2		174.6	2.27	
	3		212.3	2.76	Coal= 8.2 tph
	Avg	77	199.1	2.59	Tires= 1.2 tph
03/16/93	1		222.9	2.91	
	2		212.3	2.78	
	3		207.8	2.72	Coal= 7.51 tph
	Avg	76.5	214.3	2.80	Tires= 1.33 tph
06/01/94	1		200.12	2.51	
	2		170.19	2.14	
	3		306.68	3.85	Coal= 7.3 tph
	Avg	79.6	225.66	2.83	Tires= 1.28 tph

Sources: Koogler & Associates, Environmental Services Stack Test Reports:

"Summary of Particulate Matter, Sulfur Dioxide and Nitrogen Oxides Emission Measurements (and Visible Emission Observations), Cement Plant, Central Power and Lime, Inc." June 14, 1989; August 20, 1990; March 2, 1991; March 16, 1993; and June 1, 1994.

"Summary of Particulate Matter, Benzene, Total Hydrocarbons, Carbon Monoxide and Nitrogen Oxides Emission Rates under Baseline and Whole-Tire TDF Firing Conditions, Florida Crushed Stone Company, Cement/Lime Plant" November 13-21, 1991.

SUMMARY OF NOx STACK TEST DATA FOR FLORIDA MINING & MATERIALS/SOUTHDOWN

Date	Test Number	Clinker[a] Production (ton/hr)	NOx Emissions (lb/hr)	NOx Emissions (lb/ton)	Notes	Kiln Feed (ton/hr)
Kiln #1	1		322.9	4.07		
02/28/92	2		307.8	3.88		
	3		334.6	4.22	Coal=	
	Avg	79.3	321.8	4.06	9.75 tph	130
Kiln #2	1		108.0	1.36		
03/24/92	2		99.3	1.25		
	3		97.0	1.22	Coal=	
	Avg	79.6	101.4	1.27	7.79 tph	
Kiln #1	1	88.3	205.95	2.33		144.7
05/05/93	2	87.0	236.35	2.72		142.7
	3	90.2	205.38	2.28		147.8
	4	84.8	193.97	2.29		139.0
	5	84.8	190.08	2.24		139.0
	6	84.8	166.42	1.96		139.0
05/06/93	7	63.9	134.01	2.10		104.8
	8	86.3	185.79	2.15		141.5
	9	89.5	200.64	2.24		146.7
	10	88.9	242.86	2.73		145.7
	11	88.9	212.71	2.39		145.7
	12	88.9	194.41	2.19	Coal=	145.7
	Avg	85.5	197.38	2.30	8.4 tph	140.2
Kiln #1	1	84.5	118.78	1.41		138.5
06/08/93	2	62.2	92.30	1.48		101.9
	3	87.0	133.55	1.54		142.6
	4	81.3	161.73	1.99		133.3
	5	81.3	227.33	2.80		133.3
	6	83.1	215.70	2.60		136.3
06/09/93	7	86.9	166.34	1.91		142.4
	8	86.9	189.05	2.18		142.4
	9	86.9	242.46	2.79		142.4
	10	85.5	265.64	3.11	Coal=	140.2
	11	85.5	243.96	2.85	7.5 tph	140.2
	12	85.5	201.78	2.36	TDF=	140.2
	Avg	83.1	188.22	2.25	1.57 tph	136.1
Kiln #1	1		143.2	1.80		
01/26/94	2		195.1	2.45		
	3		151.5	1.90	Coal=	
	Avg	79.6	163.0	2.05	11.3 tph	
Kiln #2	1		179.8	2.38		
02/10/95	2		204.1	2.70		
	3		180.9	2.40	Coal=	
	Avg	75.5	188.2	2.49	10.4 tph	123.7

[a]Clinker production calculated as 61% of kiln feed where kiln feed shown.

SUMMARY OF NOx STACK TEST DATA FOR FLORIDA MINING & MATERIALS/SOUTHDOWN
(Concluded)

Date	24-Hour Block Averaged CEM Data for FMM Kiln #2 NOx Emissions (lb/hr)	NOx (lbs/ton clinker)	Date	24-Hour Block Averaged CEM Data for FMM Kiln #2 NOx Emissions (lb/hr)	NOx (lbs/ton clinker)
03/26/93	176.3	2.38	04/15/93	155.0	2.00
03/27/93	145.8	1.93	04/16/93	132.9	1.70
03/28/93	173.4	2.27	04/17/93	165.2	2.07
03/29/93	165.7	2.20	04/18/93	131.5	1.67
03/30/93	171.7	2.29	04/19/93	177.9	2.27
03/31/93	196.7	2.55	04/20/93	240.2	3.11
04/01/93	118.8	1.57	04/21/93	183.6	2.78
04/02/93	98.4	1.31	04/22/93	150.2	1.95
04/03/93	104.4	1.42	04/23/93	128.0	1.66
04/04/93	109.4	1.44	04/24/93	123.0	1.59
04/05/93	138.6	1.83	04/25/93	175.0	2.28
04/08/93	184.0	2.28	04/26/93	185.6	2.42
04/09/93	164.9	2.07	04/27/93	162.5	2.09
04/10/93	119.8	1.54	04/28/93	183.1	2.38
04/11/93	124.7	1.54	04/29/93	163.8	2.05
04/12/93	152.4	1.90	04/30/93	177.9	2.32
04/13/93	136.0	1.69	05/01/93	167.1	2.18
04/14/93	174.1	2.24	05/02/93	138.3	1.82

Sources: Koogler & Associates, Environmental Services Stack Test Reports:
"Particulate Matter, Particulate Size, Total Hydrocarbons, Sulfur Dioxide, Nitrogen Oxides and Carbon Monoxide, Kiln No.1, Coal, Florida Mining and Materials, Inc." February 28, 1992;
"Comparison of Particulate Matter, Sulfur Dioxide, Total Hydrocarbons, Carbon Monoxide, Nitrogen Oxides, Hydrogen Chloride, Speciated Volatile Organics, Metals and Dioxins/Furans Emission Measurements and Opacities of Emissions under Baseline and Coal/TDF Firing Conditions, Kiln No.1, Florida Mining & Materials" May 4-5, 1993 and June 8-9, 1993; and
"Particulate Matter, Total Hydrocarbons, Sulfur Dioxide, Carbon Monoxide, Nitrogen Oxides and Visible Emission Measurements, No.2 Cement Kiln, Coal, Florida Mining and Materials, Inc." February 10, 1995.
and Dr. John Koogler (personal communication), October 19, 1995.

RTP ENVIRONMENTAL ASSOCIATES INC.
AIR • WATER • SOLID WASTE CONSULTANTS
239 U.S. Highway 22 East • Green Brook, New Jersey 08812
(908) 968-9600

LETTER OF TRANSMITTAL

TO Mr. Clair Fancy
FDEP
111 S. Magnolia Dr., Suite 4
Tallahassee, FL 32301

Date: 10-24-95 Proj. ID: FCS-100

RECEIVED
OCT 25 1995
BUREAU OF AIR REGULATION

WE ARE SENDING YOU: ☒ Attached ☐ Under separate cover
VIA: ☐ 1st Class Mail ☒ Federal Express ☐ Hand Delivery ☐
THE FOLLOWING ITEMS: a.m. delivery

Copies	Date	No.	Description
1	10-24-95		Comment Response Letter RE: Florida Crushed Stone Company
1	10-24-95		Copy of Same As Above for Mr. Cleve Holladay
1	10-24-95		Copy of Same As Above for Mr. Al Linero
1	10-24-95		Copy of Same As Above for Ms. Teresa Heron

THESE ARE TRANSMITTED AS CHECKED BELOW:

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REMARKS _____

COPY TO: _____

SIGNED: Mary P. Jordan

If enclosures are not as noted, kindly notify us at once.

Hard Copy confirmation of FAX to you on 10/12/95

Fla Crushed Stone

al

United States Department of the Interior

FISH AND WILDLIFE SERVICE
1875 Century Boulevard
Atlanta, Georgia 30345

IN REPLY REFER TO:

OCT 11 1995

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AIR REGULATION

Mr. Clair H. Fancy
Chief, Bureau of Air Regulation
Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399

Dear Mr. Fancy:

In our April 19, June 16, August 11, and September 11, 1995, letters to you, we commented on the Prevention of Significant Deterioration permit application and additional information for the new cement kiln proposed by Florida Crushed Stone. The kiln would be located 20 km southeast of Chassahowitzka Wilderness Area, a Class I air quality area administered by the Fish and Wildlife Service. The new kiln would emit significant amounts of PM-10, sulfur dioxide (SO_2), nitrogen oxides (NO_x), and carbon monoxide.

Our August 11 and September 11 letters expressed concern regarding predicted visible plume impacts at Chassahowitzka WA resulting from the FCS proposed kiln. We requested that FCS be required to reduce or offset emissions to eliminate the potential for visible plumes. As a result of our comments, FCS requested a conference call between FCS, your office, and our Air Quality Branch.

In this September 18, 1995, conference call, FCS proposed performing a more refined visibility modeling analysis with the PLUVUE 2 model. It was agreed that this would be acceptable. They submitted this analysis on September 27, 1995. Our Air Quality Branch believed that the FCS analysis did not adequately represent possible conditions at Chassahowitzka WA, and repeated the PLUVUE 2 analysis using an additional observer viewpoint. The Air Quality Branch analysis predicted a visible plume in the wilderness area due to emissions from the proposed FCS kiln. The Air Quality Branch has summarized their comments in the enclosed Technical Review Document.

Visible plume impacts in the Class I area would be unacceptable. We understand that you may require FCS to meet a lower NO_x emission rate of 207 pounds per hour, rather than the higher limit of 359 pounds per hour proposed by FCS. We are confident that if FCS meets the lower

emission rate, the potential for visible plumes at Chassahowitzka WA due to the proposed kiln will be eliminated.

We will continue to consult with your office on this project. If you have any questions, please contact Ms. Ellen Porter of our Air Quality Branch in Denver, Colorado at 303/969-2617.

Sincerely yours,

Noreen K. Clough

Noreen K. Clough
Regional Director

Enclosure

CC: Teresa Heron, BAR
Cleve Holladay, BAR
Buck Oven, DEP
B. Thomas, SWD
D. Beason, OGC
L. Jennings, Hernando Co
D. Elias, RTP
L. Curtin, Hi K

Technical Review of the
PLUVUE 2 Visibility Analysis
Submitted September 27, 1995,
For Florida Crushed Stone's
Proposed New Cement Kiln, Hernando County, Florida
by
Air Quality Branch, Fish and Wildlife Service - Denver

On July 11 and August 22, 1995, Florida Crushed Stone (FCS) submitted revised visibility analyses, as requested by our office. These analyses were needed to assess potential visible plume impacts at Chassahowitzka Wilderness Area (WA) from FCS's proposed new cement kiln. The new kiln would be located 20 kilometers southeast of Chassahowitzka WA, a Class I area administered by the U.S. Fish and Wildlife Service (FWS). The new kiln would emit significant amounts of PM-10, sulfur dioxide, nitrogen oxides (NO_x), and carbon monoxide.

The revised analyses, performed with the VISCREEN model, predicted that emissions from FCS would cause visible plume impacts in the wilderness area. Our letter of September 11, 1995, repeated concerns regarding these impacts expressed in previous letters (April 19, June 16, and August 11, 1995). We requested that FCS be required to reduce emissions to ensure that no visible plume impacts occur at the wilderness area during daylight hours due to the proposed kiln. As a result of our comments, FCS requested a conference call between FCS, the Florida Department of Environmental Protection (FDEP), and the FWS Air Quality Branch.

In the September 18, 1995, conference call, FCS proposed performing a more refined modeling analysis for plume impacts with the PLUVUE 2 model. It was agreed that FCS would submit the results of this modeling to our office. Our comments on the PLUVUE 2 analysis are presented below.

PLUVUE 2 Visibility Analysis

The FCS PLUVUE 2 analysis assumed a NO_x emission rate of 359 pounds per hour (lb/hr). FCS examined the impact of a coherent plume viewed from the southeastern portion of the wilderness area with the observer looking north-northeast. The analysis predicted that, from this observer viewpoint, a coherent plume would not be seen by the observer. Our office repeated the analysis to determine if a visible plume could be observed from other portions of the wilderness area. Our analysis placed the observer in the northeast section of the refuge looking south-southwest, with a wind direction of 130 degrees. Our analysis also assumed a wind speed of 1.0 meter per second (m/s), as is required of a worst-case seasonal analysis; FCS had used a wind speed of 1.5 m/s. Our analysis predicted that a visible plume with a "delta E" of 2.109 would occur during the winter season. A "delta E" value of 2.0 is the Environmental Protection Agency (EPA) accepted threshold value of a colored plume.

FCS expressed the concern that a wind direction of 130 degrees would place the observer within the edge of the plume. While this is not allowed in the VISCREEN model, it is acceptable for the PLUVUE 2 model. On page 28 of the User's Manual for the Plume Visibility Model, PLUVUE II Revised (EPA-454/B-92-008, October 1992) EPA states:

> "It should be noted that if the distance (r_p) and azimuthal angle (alpha) are such that the observer is within the plume, the total plume optical thickness along the line of

sight is reduced accordingly. The calculated distance r_p is the distance between the observer and the centroid of plume material viewed by the observer."

As we have stated before, predicted visible plume impacts in Chassahowitzka WA are unacceptable. We understand that FDEP intends to require FCS to meet a lower NO_x emission rate of 207 lb/hr, rather than the proposed rate of 359 lb/hr. If the lower emission rate is met, we are confident that the proposed kiln will not cause visible plumes at Chassahowitzka WA.

Contact: Ellen Porter
(303) 969-2617

CC: T. Heron, BAR
C. Holladay, BAR
B. Oven, DEP
B. Thomas, SWD
D. Beason, OGC
L. Jennings, HC
D. Elias, RTP
L. Curtin, H&K
EPA